

Name: _____
Date: _____
Class: _____

Algebra
Unit 6
PS

Remember, this assignment is 15 points of your 100 point test grade. You can have this assignment checked as many times as you wish prior to the test. It is due at the beginning of class the day you take the test

1) [2] Simplify: $\frac{(4x^2y)^3}{(2x^3y^2)^2}$

2) [2] Simplify: $\frac{10a^2b^8c^3d}{25a^9bc^2d^{-4}}$

3) [3] Find $f(-2)$ if $f(x) = 3x^{-2} - 4x^0$

4) [2] Find $f(-4)$ if $f(x) = 8(2)^x$

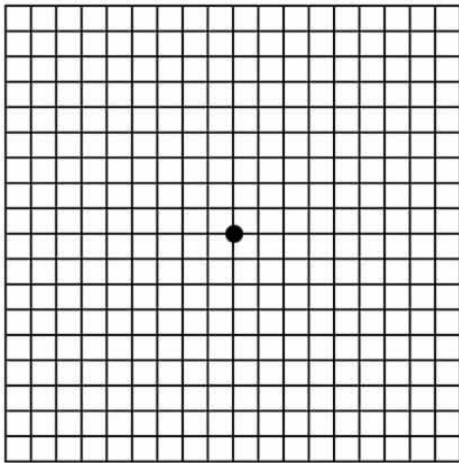
5) [3] Using $g(x) = 20(4)^{-x}$ find $g(-2) + g(4)$

6) [3] If the number of people with a cold is 5 today and doubles 2 days, create a chart to show the number of days (x) and number of people with a cold (y) on a domain of $0 \leq x \leq 4$.

7) [3] Create an exponential equation that could be used to represent the data in #6

8) [3] Create a geometric series equation that could be used to represent this data

9) [3] Sketch a graph of the function $j(x) = 4(2)^x$ on the domain $-2 \leq x \leq 2$



10) [3] Using $g(x) = 64 \left(\frac{1}{4}\right)^x$, find the average rate of change between $x = -3$ and $x = 2$

11) [3] The population of bacteria in a dish is currently 2000. The bacteria grow at a rate of 2% per minute. Write an equation that can be used to find the number of bacteria in

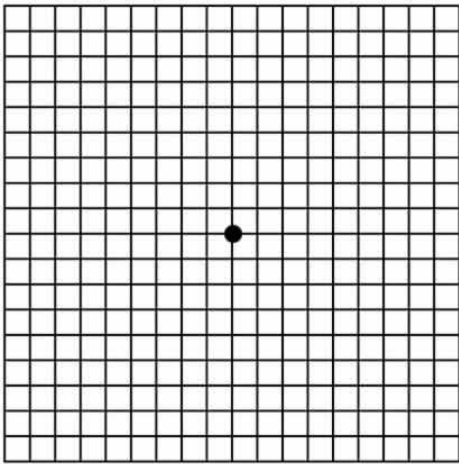
the dish after x minutes. Use this equation to find how many bacteria will be in the dish after 15 minutes.

12) [4] If your rent decreased from \$700 per month to \$630 per month, what was the percentage decrease? If the landlord raised the rent from \$630 by the same rate that he decreased it by, what would you be paying then?

13) [4] In your college savings account you currently have \$15,600. You earn 5.5% interest per year. If you are going to college in 5 years, how much would the account have in it when you go to college?

14) [3] If you increase 50 by 8% and then increase this new number again by 8% what number will you end with? What percent was the overall increase from 50 to the new number?

15) [4] Water is draining out of a pool at a rate of 15% per 5 minutes. Sketch a graph of this if the water is at a depth of 12ft at the start over the domain of $0 \leq x \leq 10$. Approximately how much water is left in the pool after 7 minutes?



16) [3] Find a linear equation if the graph passes through the points (0, 3) and (1, 9).

17) [3] Find an exponential equation if the graph passes through (0, 3) and (1, 9).

18) [4] If a recursive function is defined by $a_1 = 7, a_n = a_{n-1} + 11$, find the first 5 terms of this function. Create a linear function that would give the same terms.

19) [4] A special sequence is defined as follows: $t(1) = 6, t(2) = 1$, and $t(n) = t(n-2) - t(n-1)$. Use this to determine the first 5 values of t . Is there a constant rate of change?

20) [4] Create an exponential equation that could replace the geometric sequence:

$$z_1 = 28, z_n = \frac{1}{2}z_{n-1}$$